

What is claimed is:

1. A fluid separation conduit cartridge comprising:
  - 5 a housing unit;
  - a fluid separation conduit within the housing unit;
  - 10 an inlet orifice in fluid communication with a first end of the fluid separation conduit;
  - an outlet orifice in fluid communication with a second end of the fluid separation conduit, the fluid separation conduit providing a fluid flow path within the housing unit from the inlet orifice to the outlet orifice; and
  - 15 an encryption device mounted to the fluid separation conduit cartridge and operative to perform an encryption operation on a signal communicated between the encryption device and a component in fluid communication with the fluid separation conduit cartridge.
2. The fluid separation conduit cartridge in accordance with claim 1 further comprising a memory unit mounted to the housing unit.
3. The fluid separation conduit cartridge in accordance with claim 1 in which the encryption device is a microprocessor.
4. The fluid separation conduit cartridge in accordance with claim 2 further comprising one or more parameter tables in the memory unit.
- 25 5. The fluid separation conduit cartridge in accordance with claim 4 in which the one or more parameter tables are selected from the group consisting of encryption algorithms and compression algorithms.
6. The fluid separation conduit cartridge in accordance with claim 5 in which the encryption algorithm is selected from the group consisting of translation tables, word/byte rotation, Simple Key Management for Internet Protocols (SKIP), XOR bit masking, DES, Blowfish, and MD5.

7. The fluid separation conduit cartridge in accordance with claim 1 further comprising a transmitting and receiving device operative to transmit and receive information.

5 8. The fluid separation conduit cartridge in accordance with claim 7 in which the transmitting and receiving device operative to transmit and receive information is preferably selected from the group consisting of a modem, a fax machine, a wireless phone, a wireless transmitter, a RF transmitter, and a satellite transmitter.

10 9. The fluid separation conduit cartridge of claim 7 in which the transmitting and receiving device operative to transmit and receive information transmits and receives information by fax, e-mail, the Internet, or wirelessly.

15 10. The fluid separation conduit cartridge in accordance with claim 9 in which the transmitted information is encrypted.

11. The fluid separation conduit cartridge in accordance with claim 1 in which the fluid separation conduit is potted with a potting compound.

20 12. The fluid separation conduit cartridge in accordance with claim 1 in which the encryption device operative to encrypt and decrypt information uses public/private key pairs to encrypt and decrypt information.

25 13. A method of making a fluid separation conduit cartridge, the method comprising:  
providing an assembled fluid separation conduit cartridge, the assembled fluid separation conduit cartridge comprising  
a housing unit,  
a fluid separation conduit within the housing unit,  
an inlet orifice in fluid communication with a first end of the fluid separation conduit,

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an outlet orifice in fluid communication with a second end of the fluid separation conduit, the fluid separation conduit providing a fluid flow path within the housing unit from the inlet orifice to the outlet orifice, and

5 an encryption device mounted to the fluid separation conduit cartridge and operative to perform an encryption operation on a signal communicated between the encryption device and a component in fluid communication with the fluid separation conduit cartridge,

10 packing the fluid separation conduit cartridge with appropriate packing material; and

testing the fluid separation conduit cartridge.

14. The method of claim 13 in which the fluid separation conduit cartridge further comprises a transmitting and receiving device operative to transmit and receive information.

15. The method of claim 14 in which the transmitting and receiving device operative to transmit and receive information is selected from the group consisting of a modem, a fax machine, a wireless phone, a wireless transmitter, a RF transmitter, and a satellite transmitter.

20 16. The method of claim 13 in which information is encrypted by providing information to an encryption driver and encrypting the provided information using an encryption algorithm.

17. A method of sending information from a fluid separation conduit cartridge, the method comprising:

25 providing an assembled fluid separation conduit cartridge, the assembled fluid separation conduit cartridge comprising

a housing unit,

a fluid separation conduit within the housing unit,

an inlet orifice in fluid communication with a first end of the fluid

30 separation conduit,

an outlet orifice in fluid communication with a second end of the fluid separation conduit, the fluid separation conduit providing a fluid flow path within the housing unit from the inlet orifice to the outlet orifice, and

5 an encryption device mounted to the fluid separation conduit cartridge and operative to perform an encryption operation on a signal communicated between the encryption device and a component in fluid communication with the fluid separation conduit cartridge;

10 a transmitting and receiving device operative to transmit and receive information; encrypting information using an encryption algorithm; and transmitting the encrypted information using the transmitting and receiving device.

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18. The method of claim 17 in which the transmitting and receiving device operative to transmit and receive information is selected from the group consisting of a modem, a fax machine, a wireless phone or comparable device, a RF transmitter, and a satellite transmitter.

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19. The method of claim 17 wherein the transmitted encrypted information is sent to an instrument in fluid communication with the fluid separation conduit cartridge.

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20. The method of claim 17 in which the transmitted encrypted information is sent to an operating facility in communication with the fluid separation conduit cartridge.

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21. A method of receiving information using a fluid separation conduit cartridge, the method comprising:

providing an assembled fluid separation conduit cartridge, the assembled fluid separation conduit cartridge comprising

a housing unit,

a fluid separation conduit within the housing unit,

an inlet orifice in fluid communication with a first end of the fluid separation conduit,

an outlet orifice in fluid communication with a second end of the fluid separation conduit, the fluid separation conduit providing a fluid flow path within the housing unit from the inlet orifice to the outlet orifice,

5 an encryption device mounted to the fluid separation conduit cartridge and operative to perform an encryption operation on a signal communicated between the encryption device and a component in fluid communication with the fluid separation conduit cartridge, and

a transmitting and receiving device operative to transmit and receive information;

10 transmitting encrypted information to the assembled fluid separation conduit cartridge; and

15 receiving the encrypted information using the transmitting and receiving device operative to transmit and receive information.

22. The method of claim 21 further comprising the step of decoding the received encrypted information.

23. The method of claim 21 in which the transmitted encrypted information is sent from an instrument in fluid communication with the fluid separation conduit cartridge.

24. The method of claim 21 in which the transmitted encrypted information is sent from an operating facility in communication with the fluid separation conduit cartridge.

25. An analytical system comprising:

25 a fluid flow channel;

a fluid separation conduit cartridge;

a detector; and

an encryption device operative to perform an encryption operation on a signal communicated between the encryption device and another component of the analytical system;

the fluid separation conduit cartridge being in fluid communication with the fluid flow channel and comprising

a housing unit,

a fluid separation conduit within the housing unit,

5 an inlet orifice in fluid communication with a first end of the fluid separation conduit, and

an outlet orifice in fluid communication with a second end of the fluid separation conduit and in fluid communication with the detector, the fluid separation conduit providing a fluid flow path within the housing unit from the inlet orifice to the outlet orifice.

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26. The analytical system of claim 25 further comprising a device for generating fluid flow.

27. The analytical system of claim 25 in which the encryption device is mounted to the fluid separation conduit cartridge.

28. The analytical system of claim 25 in which the encryption device is operative to receive and decrypt an encrypted signal from a remote source.

29. The analytical system of claim 25 in which the encryption device is operative to receive and encrypt a signal from the detector corresponding to information regarding a test sample.

30. The analytical system of claim 25 in which the encryption device comprises a memory unit storing an encryption key.

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31. The analytical system of claim 30 in which the memory unit is mounted to the housing unit.